UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,163	01/18/2001	Brian J. Nickoloff	ISPH-0531	6074

26259 7590 12/07/2004

LICATLA & TYRRELL P.C.
66 E. MAIN STREET
MARLTON, NJ 08053

EXAMINER	
DIBRINO, MARIANNE NMN	
ART UNIT	**PAPER NUMBER**
1644	

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/743,163	NICKOLOFF, BRIAN J.	
	Examiner	Art Unit	
	DiBrino Marianne	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/13/04, 8/27/04 & 5/17/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,23 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,23 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/15/03 & 8/21/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/13/04 has been entered.

2. Applicant's amendments filed 8/27/04 and 5/17/04 are acknowledged and have been entered.

3. Claims 1, 23 and 24 are presently being examined.

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: the post office address does not include the zip code designation. See MPEP 605.03.

5. The disclosure is objected to because of the following informalities:

a. Table I on page 11 appears to be missing a right border.

b. The specification has two sets of page numbers, one at the top center of each page and one on the lower left corner of each page.

Appropriate corrections are required.

6. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1, 23 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not provide adequate written description of the claimed invention. The legal standard for sufficiency of a patent's (or a specification's) written description is whether that description "reasonably conveys to the artisan that the inventor had possession at that time of the. . .claimed subject matter", Vas-Cath, Inc. V. Mahurkar, 19 U.S.P.Q.2d 1111 (Fed. Cir. 1991). In the instant case, the specification does not convey to the artisan that the applicant had possession at the time of invention of the claimed invention.

The instant claims encompass a method of inhibiting an NK-T cell mediated immunological reaction comprising the step of: (1) topically applying to skin cells a CD1 antibody or an anti-CD1d antibody, including as per the limitations recited in claims 23 and 24, (2) to a human in vivo, since base claim 1 encompasses inhibiting the interaction between CD1d and CD161, and CD161 is a human cell surface receptor, (3) and also encompass inhibiting the interaction between MHC class I (rather than an MHC class I-like molecule) using an anti-CD1d antibody. The use for the claimed method disclosed in the specification is for treating cutaneous as well as extracutaneous diseases, particularly psoriasis (especially page 1 at lines 9-18). The specification discloses that pretreatment of immunocytes with anti-CD94, anti-CD158a or anti-CD158b antibodies could block the ability of the said immunocytes to induce psoriasis (especially Example 1 on page 5). The specification further discloses that CD161 antigen and CD1d were present in acute and chronic psoriatic lesions (especially Example 2), that after stimulation with IL-2 and bacterial superantigens an NK $CD4^+CD3^+$ T cell line from peripheral blood expressed CD161 and was able to produce psoriatic plaques in symptomless skin from a psoriatic patient, and that in these plaques the $CD161^+$ NK-T cells were juxtaposed to CD1d-expressing keratinocytes (Example 3). The specification discloses that the said NK-T cell line could recognize CD1d-expressing cultured keratinocytes, and that in the presence of IFN-γ, NK-T cell proliferation and secretion of IFN-γ could be reduced by use of antibody against CD1d in vitro (Example 3). The specification discloses that chronic psoriatic plaques had more extensive keratinocyte CD1d expression, as did contact dermatitis skin (with poison ivy leaf). The specification does not disclose that use of CD1 antibody or anti-CD1d antibody inhibits the interaction between CD1d and CD161, nor does the specification disclose topical application of CD1 antibody or anti-CD1d antibody to skin cells in vivo.

In view of the aforementioned problems regarding description of the claimed invention, the specification does not provide an adequate written description of the invention claimed herein.

9. Claims 1, 23 and 24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not disclose how to make and/or use the instant invention, a method of inhibiting an NK-T cell mediated immunological reaction comprising the step of topically applying to skin cells a composition that inhibits the interaction between an MHC class I or MHC class I-like molecule and a receptor on the NK-T cell, wherein the said composition is an a CD1 antibody, an anti-CD1 antibody, said MHC class I molecule or class I-like molecule is CD1d and the said receptor is CD161, including the compositions recited in claims 23 and 24.

The specification has not enabled the breadth of the claimed invention because the claims encompass a method of inhibiting an NK-T cell mediated immunological reaction comprising the step of (1) topically applying to skin cells a CD1 antibody or an anti-CD1d antibody, including as per the limitations recited in claims 23 and 24, (2) to a human in vivo, since base claim 1 encompasses inhibiting the interaction between CD1d and CD161, and CD161 is a human cell surface receptor, (3) and also encompass inhibiting the interaction between MHC class I (rather than an MHC class I-like molecule) using an anti-CD1d antibody. The state of the art is such that it is unpredictable in the absence of appropriate evidence whether the claimed compositions can be made and used for in the claimed method.

The use for the claimed method disclosed in the specification is for treating cutaneous as well as extracutaneous diseases, particularly psoriasis (especially page 1 at lines 9-18). The specification discloses that pretreatment of immunocytes with anti-CD94, anti-CD158a or anti-CD158b antibodies could block the ability of the said immunocytes to induce psoriasis (especially Example 1 on page 5). The specification further discloses that CD161 antigen and CD1d were present in acute and chronic psoriatic lesions (especially Example 2), that after stimulation with IL-2 and bacterial superantigens an NK $CD4^+CD3^+$ T cell line from peripheral blood expressed CD161 and was able to produce psoriatic plaques in symptomless skin from a psoriatic patient, and that in these plaques the $CD161^+$ NK-T cells were juxtaposed to CD1d-expressing keratinocytes (Example 3). The specification discloses that the said NK-T cell line could recognize CD1d-expressing cultured keratinocytes, and that in the presence of IFN-γ, NK-T cell proliferation and secretion of IFN-γ could be reduced by use of antibody against CD1d in vitro (Example 3). The specification discloses that chronic psoriatic plaques had more extensive keratinocyte CD1d expression, as did contact dermatitis skin (with poison ivy leaf).

The specification does not disclose that use of anti-CD1d antibody inhibits the interaction between CD1d and CD161, nor does the specification disclose topical application of anti-CD1d antibody to skin cells in vivo.

Evidentiary reference Nikoloff et al (Arch. Dermatol. 135: 546-552, 5/1999, IDS reference) teaches that future studies are required to confirm the possibility that human CD161 immunocytes are capable of interacting with the murine epidermal karatinocyte CD1d in vivo, as has been observed in vitro (especially page 531, column 2 at the first full paragraph). Nikoloff et al further teach that the genetic and immunological basis for psoriasis is unknown, and that functional studies will determine if targeting the $CD161^+$ immunocytes with blocking reagents will generate an immunotherapeutic strategic pathway for psoriasis (especially abstract).

Evidentiary reference Exley et al (J. Exp. Med. 188(5): 867-876, 1998, IDS reference) teaches that CD161 is a co-stimulatory molecule on human T cells, rather than an accessory cell molecule, for proliferation and cytokine secretion of Vα24 T cells, and that the Vα24 TCR bearing cells react with CD1d (especially abstract and discussion sections).

There is insufficient guidance in the specification as to how to make and/or use instant invention. Undue experimentation would be required of one skilled in the art to practice the instant invention. See In re Wands 8 USPQ2d 1400 (CAFC 1988).

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1, 23 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 is indefinite in the recitation of "a CD1d antibody" because it is not clear what is meant. It is suggested that Applicant amend said claim to recite "an anti-CD1d antibody" if that is what is meant.

b. Claim 1 is indefinite in the recitation of "said MHC class I molecule is CD1d" because it is not clear what is meant. It is suggested that Applicant amend said claim to recite "said MHC class I-like molecule" if that is what is meant.

c. Claim 24 is indefinite in the recitation of "wherein said composition comprises a solution, ointment, lotion, paste, jelly, gel, crème, spray, or aerosol" because it is not clear what is meant. Base claim 1 recites wherein "said composition is", rather than "said composition comprises".

d. Claim 1 is indefinite in the recitation of "inhibits the interaction between a MHC class I or MHC class I-like molecule...said MHC class I molecule is CD1d" because it is not clear what is meant. CD1d is not an MHC class I molecule. It is suggested that Applicant delete the limitation "a MHC class I ".

12. For the purpose of prior art rejections, the filing date of the instant claims 1, 23 and 24 is deemed to be the filing date of the PCT/US99/14549, i.e. 6/28/99, as the parent provisional applications 60/109,894 and 60/092,151 do not support the claimed limitations of the instant application. The limitation of topically applying to skin cells (instant claims 1, 23 and 24), the use of a transdermal patch (instant claim 23) or wherein the composition comprises the limitations recited in instant claim 24 are not disclosed in the said parent provisional applications. In addition, the 60/092,151 application does not disclose the claimed method of inhibiting an NK-T cell mediated immunological reaction comprising the step of topically applying to skin cells a composition that inhibits the interaction between a MHC class I or MHC class I-like molecule and a receptor on the NK-T cell, wherein said composition is an anti-CD1d antibody, said MHC class I-like molecule is CD1d, and said receptor is CD161, nor the limitations recited in instant claims 23 or 24.

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,679,347 in view of Chanchis et al (Immunology 80: 561-565, 1993), Beckman et al (Immunology Today 16(7): 349-352, 1995) and Yoshimoto et al (Science 270: 1845-1847, 1995) and prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11.

U.S. Patent No. 5,679,347 discloses that blocking agents to CD1, including antibodies to CD1d or including CD1d itself, can be useful for controlling undesired immunity, including the in vivo immune reactions that occur in autoimmunity (see entire document, especially column 11 at lines 35-42, column 16 at lines 47-54, column 20 at lines 5-42, Example 11). U.S. Patent No. 5,679,347 discloses that human double negative (DN) T cells that react with CD1 have a predominance of a canonical TCR Vα24/JαQ rearrangement (especially paragraph spanning columns 5 and 6). Applicant is reminded that no more of the reference is required than that it sets forth the substance of the invention. The claimed functional limitations, including inhibiting the [functional] interaction of an MHC class I-like molecule with the human NK-T cell receptor CD161, would be expected in the method disclosed by U.S. Patent No. 5,679,347, blocking CD1d interactions in vivo by administering an antibody to CD1d.

U.S. Patent No. 5,679,347 does not disclose the method recited in the instant claim wherein the anti-CD1d antibody is applied topically to the skin.

Chanchis et al teach that CD1d is expressed in skin mainly on epithelial (keratinocytes) cells, vascular smooth muscle cells and parenchymal cells. Chanchis et al teach anti-CD1d monoclonal antibodies.

Beckman et al teach that CD1d is the ligand for $CD4^+CD8$-$NK1.1^+$ and CD4-CD8- (i.e., double negative or "DN") $NK1.1^+$ T cells that express an invariant TCR (Vα24-JαQ/Vβ11 in humans or Vα14-Jα281/Vβ8 in mice), and that these T cells are the first to produce IL-4 after antigen stimulation and therefore play a pivotal role in inducing a T_H2 phenotype in the subsequent classical $CD4^+$ antigen specific T-cell immune response (especially paragraph spanning columns 1 and 2 on page 351).

Yoshimoto et al teach that NK1.1 T^+ cells interact with CD1 and have a restricted TCRαβ usage. Yoshimoto et al teach that in humans CD1a and CD1c are expressed on epidermal Langerhans cells, and that exposure to various allergens occurs at the site of constitutive CD1 expression such as the skin and increases peripheral expression of CD1. Yoshimoto et al teach such interaction primes IL-4 production NK1.1 T^+ cells for development of IgE-mediated immune responses, i.e., for development of IgE-mediated allergies, undesirable immune reactions, by producing IL-4 essential for priming of antigen specific T_H precursor cells to develop into T_H2 cells.

The prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11 are that transdermal delivery systems have been developed as a means of mitigating many of the drawbacks associated with the parenteral or oral route of administration (Sloan, K. D., Adv. Drug Delivery Rev. 1989 67-101), and that transdermal medicaments are well known to those of skill in the art, respectively.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have applied anti-CD1d antibody as disclosed by U.S. Patent No. 5,679,347 for controlling undesired immunity to atopic allergic subjects taught by Yoshimoto et al to inhibit the interaction of the DN Vα24/JαQ/Vβ11 $NK1^+$ T cells taught by Beckman et al and Yoshimoto et al, and to have applied it topically to the skin since Chanchis et al teach that skin expresses CD1d and in light of the said prior art admissions as to transdermal delivery systems.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to alleviate the undesired atopic allergic reaction taught by Yoshimoto et al and by Beckman et al using the anti-CD1d antibody to block an undesired immune reaction as disclosed by U.S. Patent No. 5,679,347, particularly since Chanchis et al and Yoshimoto et al teach CD1 is expressed on skin cells and the admitted prior art teaches transdermal delivery systems for medicaments and the advantages of using them. With regard to the recitation of

"composition that inhibits the interaction between...[an] MHC class I-like molecule and a receptor on the NK-T cell, wherein said composition is a CD1d antibody, said MHC class I [like] molecule is CD1d, and said receptor is CD161", the method of the combined references would be expected to functionally inhibit the interaction of CD1d with CD161, since evidentiary reference Exley et al (J. Exp. Med. 188(5): 867-876, 1998, IDS reference) cited above at item #9 of this Action teaches that CD161 is a co-stimulatory molecule on human T cells, rather than an accessory cell molecule, for proliferation and cytokine secretion of Vα24 T cells, and that the Vα24 TCR bearing cells react with CD1d (especially abstract and discussion sections).

15. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,679,347 in view of Chanchis et al (Immunology 80: 561-565, 1993), Beckman et al (Immunology Today 16(7): 349-352, 1995), Yoshimoto et al (Science 270: 1845-1847, 1995) and prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11 as applied to claim 1 above, and further in view of U.S. Patent No. 5,908,846.

U.S. Patent No. 5,679,347, Chanchis et al (Immunology 80: 561-565, 1993), Beckman et al (Immunology Today 16(7): 349-352, 1995), Yoshimoto et al (Science 270: 1845-1847, 1995) and prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11 have all been described above, hereafter referred to as "the combined references".

The combined references do not teach wherein the composition is topically applied through use of a transdermal patch, nor wherein said composition comprises a solution, ointment, lotion, paste, crème, jelly, spray or aerosol.

U.S. Patent No. 5,908,846 discloses use of a transdermal patch and/or comprising a solution, ointment, lotion, paste, crème, jelly, spray or aerosol for delivery of drugs or medicaments in order to mitigate many of the drawbacks associated with the parenteral or oral route of administration.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have administered the anti-CD1d antibody in the method of the combined references to the skin via the transdermal patch or solution, ointment, lotion, paste, crème, jelly, spray or aerosol disclosed by U.S. Patent No. 5,908,846.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to effectively administer the antibody to the skin because the combined references teach administration to the skin via transdermal means and that CD1d is expressed by keratinocytes in the skin and that blocking the reaction of CD1d using anti-CD1d antibody would be advantageous in inhibiting allergic reaction.

16. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,679,347 in view of Chanchis et al (Immunology 80: 561-565, 1993), Beckman et al (Immunology Today 16(7): 349-352, 1995), Exley et al (J. Exp. Med. 186(1): 109-120, 1997), Yoshimoto et al (Science 270: 1845-1847, 1995) and prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11.

U.S. Patent No. 5,679,347 discloses that blocking agents to CD1, including antibodies to CD1d or including CD1d itself, can be useful for controlling undesired immunity, including the in vivo immune reactions that occur in autoimmunity (see entire document, especially column 11 at lines 35-42, column 16 at lines 47-54, column 20 at lines 5-42, Example 11). U.S. Patent No. 5,679,347 discloses that human double negative (DN) T cells that react with CD1 have a predominance of a canonical TCR Vα24/JαQ rearrangement (especially paragraph spanning columns 5 and 6). Applicant is reminded that no more of the reference is required than that it sets forth the substance of the invention. The claimed functional limitations, including inhibiting the [functional] interaction of an MHC class I-like molecule with the human NK-T cell receptor CD161, would be expected in the method disclosed by U.S. Patent No. 5,679,347, blocking CD1d interactions in vivo by administering an antibody to CD1d.

U.S. Patent No. 5,679,347 does not disclose the method recited in the instant claim wherein the anti-CD1d antibody is applied topically to the skin.

Chanchis et al teach that CD1d is expressed in skin mainly on epithelial (keratinocytes) cells, vascular smooth muscle cells and parenchymal cells. Chanchis et al teach anti-CD1d monoclonal antibodies.

Beckman et al teach that CD1d is the ligand for $CD4^+CD8$-$NK1.1^+$ and CD4-CD8- (i.e., double negative or "DN") $NK1.1^+$ T cells that express an invariant TCR (Vα24-JαQ/Vβ11 in humans or Vα14-Jα281/Vβ8 in mice), and that these T cells are the first to produce IL-4 after antigen stimulation and therefore play a pivotal role in inducing a T_H2 phenotype in the subsequent classical $CD4^+$ antigen specific T-cell immune response (especially paragraph spanning columns 1 and 2 on page 351).

Exley et al (J. Exp. Med. 186(1): 109-120, 1997) teach that human DN Vα24/JαQ/Vβ11 T cells or $NK1^+$ T cells are a specialized population of CD1d-specific T cells that are analogous to mouse $NK1.1^+$ T cells. Exley et al teach that these cells express NKR-P1A, i.e., CD161. Exley et al further teach that recognition of CD1d by the said cells produced significant levels of IL-4 in response to activation. Exley et al teach inhibition using anti-CD1d antibodies.

Yoshimoto et al teach that NK1.1 T^+ cells interact with CD1 and have a restricted TCRαβ usage. Yoshimoto et al teach that in humans CD1a and CD1c are expressed on epidermal Langerhans cells, and that exposure to various allergens occurs at the site of constitutive CD1 expression such as the skin and increases peripheral expression of CD1. Yoshimoto et al teach such interaction primes IL-4 production NK1.1 T^+ cells for development

of IgE-mediated immune responses, i.e., for development of IgE-mediated allergies, undesirable immune reactions, by producing IL-4 essential for priming of antigen specific T_H precursor cells to develop into T_H2 cells.

The prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11 are that transdermal delivery systems have been developed as a means of mitigating many of the drawbacks associated with the parenteral or oral route of administration (Sloan, K. D., Adv. Drug Delivery Rev. 1989 67-101), and that transdermal medicaments are well known to those of skill in the art, respectively.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have applied anti-CD1d antibody as disclosed by U.S. Patent No. 5,679,347 for controlling undesired immunity to atopic allergic subjects taught by Yoshimoto et al to inhibit the interaction of the DN Vα24/JαQ/Vβ11 $NK1^+$ T cells taught by Beckman et al and Yoshimoto et al and Exley et al, and to have applied it topically to the skin since Chanchis et al teach that skin expresses CD1d and in light of the said prior art admissions as to transdermal delivery systems.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to alleviate the undesired atopic allergic reaction taught by Yoshimoto et al and by Beckman et al using the anti-CD1d antibody taught by U.S. Patent No. 5,679,347 and Exley et al to block an undesired immune reaction as disclosed by U.S. Patent No. 5,679,347, particularly since Chanchis et al and Yoshimoto et al teach CD1 is expressed on skin cells and the admitted prior art teaches transdermal delivery systems for medicaments and the advantages of using them. With regard to the recitation of "composition that inhibits the interaction between...[an] MHC class I-like molecule and a receptor on the NK-T cell, wherein said composition is a CD1d antibody, said MHC class I [like] molecule is CD1d, and said receptor is CD161", the method of the combined references would be expected to functionally inhibit the interaction of CD1d with CD161, since evidentiary reference Exley et al (J. Exp. Med. 188(5): 867-876, 1998, IDS reference) cited above at item #9 of this Action teaches that CD161 is a co-stimulatory molecule on human T cells, rather than an accessory cell molecule, for proliferation and cytokine secretion of Vα24 T cells, and that the Vα24 TCR bearing cells react with CD1d (especially abstract and discussion sections).

17. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,679,347 in view of Chanchis et al (Immunology 80: 561-565, 1993), Beckman et al (Immunology Today 16(7): 349-352, 1995), Yoshimoto et al (Science 270: 1845-1847, 1995), Exley et al (J. Exp. Med. 186(1): 109-120, 1997) and prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11 as applied to claim 1 above, and further in view of U.S. Patent No. 5,908,846.

U.S. Patent No. 5,679,347, Chanchis et al (Immunology 80: 561-565, 1993), Beckman et al (Immunology Today 16(7): 349-352, 1995), Exley et al (J. Exp. Med. 186(1): 109-120, 1997), Yoshimoto et al (Science 270: 1845-1847, 1995) and prior art admissions in the specification on page 24 at lines 26-29 and on page 25 at lines 7-11 have all been described above, hereafter referred to as "the combined references".

The combined references do not teach wherein the composition is topically applied through use of a transdermal patch, nor wherein said composition comprises a solution, ointment, lotion, paste, crème, jelly, spray or aerosol.

U.S. Patent No. 5,908,846 discloses use of a transdermal patch and/or comprising a solution, ointment, lotion, paste, crème, jelly, spray or aerosol for delivery of drugs or medicaments in order to mitigate many of the drawbacks associated with the parenteral or oral route of administration.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have administered the anti-CD1d antibody in the method of the combined references to the skin via the transdermal patch or solution, ointment, lotion, paste, crème, jelly, spray or aerosol disclosed by U.S. Patent No. 5,908,846.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to effectively administer the antibody to the skin because the combined references teach administration to the skin via transdermal means and that CD1d is expressed by keratinocytes in the skin and that blocking the reaction of CD1d using anti-CD1d antibody would be advantageous in inhibiting allergic reaction.

18. No claim is allowed.

19. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware of in the specification.

20. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marianne DiBrino whose telephone number is 571-272-0842. The Examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Christina Y. Chan, can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marianne DiBrino, Ph.D.
Patent Examiner
Group 1640
Technology Center 1600
December 3, 2004

CHRISTINA CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600